

defined, most of the rains falling during the first five days and from the 10th to the 21st, inclusive. In the northern States there was very little precipitation after the 16th. Only a few stations, about half a dozen, experienced rainfalls that equaled or exceeded 2.50 inches in 24 consecutive hours. The only snowfall reported was a trace at Warroad, Minn. The average number of days with an appreciable amount of precipitation was seven.

#### RIVERS.

There was little of interest in river conditions at any time during the month. The usual "June rise" in the upper Mississippi did not occur this year. At Dubuque, Iowa, the stage steadily decreased from 11.3 feet on the 1st to 4.0 feet on the 30th. At Cairo, Ill., the highest stage during the month, 27.5 feet, occurred on the 1st and the lowest, 20.8 feet, on the 17th. By the 22d the river at that point had risen to 27.2 feet, but thereafter there was a decline, which continued at the close of the month, when the stage was 22.8 feet.

#### MISCELLANEOUS.

Wind directions were more variable than usual, but the prevailing direction for the month was northwesterly. The highest velocity reported was 46 miles an hour from the northwest, on the 3d, at Devils Lake, N. Dak.

The percentage of possible sunshine averaged above the normal, but not markedly so. For the entire district the average was about 70 per cent. The average number of clear days was 16; partly cloudy, 8; and cloudy, 6.

#### DRAINAGE AND ENGINEERING NOTES.

A reclamation project involving an outlay of possibly \$100,000 for levees and other improvements on a tract of 3,500 acres of level, treeless bottom land in Marion County, Mo., was launched early in July. During flood seasons this tract often is almost overflowed, and it is proposed to protect it by 8 miles of levee, 12 feet high, extending 3 feet above the highest stage ever reached by the Mississippi. The construction work will include the building of the levee, digging of drainage canals, and laying out wagon roads. The success of the project is expected to prove of material benefit to Quincy, Ill.,

which is only  $3\frac{1}{2}$  miles from the northeast corner of the tract.

A flood and drainage conference called by the governor of Illinois met in Chicago on June 14. Resolutions appealing to the Federal Government to recognize the drainage of the Mississippi River as of equal national importance with the Panama Canal were adopted by the representatives of 15 States who were present. Prevention of Mississippi River floods by the construction of a waterway to divert the headwaters of the river into Lake Michigan was urged by the former president of the Chicago sanitary district. Three routes have been suggested by engineers who have studied the problem: A diversion channel could be cut through between St. Paul, Minn., and Green Bay, Wis., a distance of 250 miles; one might connect La Crosse with Milwaukee, 185 miles; and a third might run between Galena, Ill., and Chicago, 152 miles.

#### PROGRESS OF WORK—DRAINAGE OF AMERICAN BOTTOMS.

By CLARENCE J. ROOT, Section Director.

An article entitled "Draining the American Bottoms" appeared in the Monthly Weather Review (District No. 5) for May, 1911. Mr. W. McK. Brown, cooperative observer, Weather Bureau, and assistant engineer, the East Side levee and sanitary district, furnishes the following statement showing the status of the work on June 30, 1912:

The Cahokia Creek diversion channel is finished and the water from the Cahokia Creek was turned into the same on April 7, 1912. As before stated, this channel is  $4\frac{1}{2}$  miles long, 100 feet wide on the bottom, and runs from the bluffs at Poag, Ill., directly west to the Mississippi River, emptying into the same at a point about 1 mile south of the mouth of the Missouri River. This channel takes care of all the hill drainage of Cahokia Creek, amounting to 259 square miles, and empties into the Mississippi River at a point 15 miles north of the original mouth of Cahokia Creek.

A levee has been built across the old mouth of Cahokia Creek, a small culvert equipped with floodgates being placed in the bed of the creek to accommodate the drainage from the area south of the diversion channel. This levee and floodgate will prevent the Mississippi River from backing up the old channel of the Cahokia Creek into the town of East St. Louis.

Of the front levee south of the diversion channel, about 5 miles of the work has been completed, and 10 miles, reaching to the old mouth of Cahokia Creek in the south part of East St. Louis, is under construction and will be completed about June 1, 1913.